CHAPTER 1

1. PURPOSE, NEED, AND BACKGROUND FOR THE PROPOSED ACTION(S)

1.1 Purpose of the Proposed Action(s)

The Tennessee Valley Authority (TVA) is proposing to restructure its wholesale electric power rates to better align them with the current cost of service and the competitive market that surrounds TVA. TVA's goal is to continue to supply affordable, reliable electric power to the distributors and consumers in the region at the lowest feasible rates.

1.2 Need for the Proposed Action(s)

Currently supplying 158 power distributors and 62 directly served large industries and federal customers, TVA is the largest single producer of power in the United States. The 158 power distributors are served under power contracts that contain a Schedule of Rates and Charges setting forth the wholesale rates to be paid by the distributor. Most of these contracts also specify the retail rates at which the power supplied by TVA to these distributors is resold to the 8.3 million consumers in the Tennessee Valley area (Valley). These contracts provide for rate changes under which the Schedule of Rates and Charges can be restructured by the TVA Board of Directors from time to time. Such rate changes are designed to be revenue neutral, i.e., they are intended to produce no additional income for TVA.

The TVA rate structure was last changed in 1992 when TVA adopted an end-use wholesale rate design under which a distributor's wholesale power cost is primarily driven by the classification of the retail customers to whom the power is resold. It remains as the current structure and is relatively unique in the electric utility industry. TVA's rate structure establishes specific wholesale demand and energy charges applicable according to the retail meter readings of each end-use customer. The charges are specified for residential and general power (commercial and industrial) classifications. Within the general power classifications, the charges are further broken down based on load size and whether or not time-of-day rates are applicable.

Since TVA last changed its rate structure in 1992, conditions have changed sufficiently that additional changes may now be warranted. Among other things, load growth or demand on the TVA system has continued to be on the high end of the range projected in TVA's comprehensive analysis of future demands on the TVA system and alternatives to meeting those demands (TVA, 1995). Additionally, the value of the TVA hydro system has changed, and TVA's customer mix is different due to unequal growth in customer classes.

TVA rates for residential and commercial customers are favorable in comparison to those of other utilities in the region; however, rates for industrial customers are about 12 percent higher than the average for neighboring utilities. Industrial manufacturing remains a vital driving force for the economic health of the seven-state TVA region. However, between 1989 and 2002, civilian nonfarm employment in the region declined from 27 percent of the workforce to 20 percent. The Tennessee Valley is continuing to lose manufacturing jobs. A considerable portion of the operating costs for industrial end-use customers is often related to costs for electric power. While energy cost is just one of many factors typically considered by industries when they decide where to locate, relocate, or expand facilities, it can be an important factor in specific situations. In light of TVA's economic development mission, TVA tries to ensure that its

electric rate structure does not burden the manufacturing sector of the regional economy served by TVA.

Based on several analyses, including cost of service, allocation of the hydro system benefits (to the residential class), and various competitive factors including market trends and rates charged by other utilities, TVA has decided to propose reallocating the costs reflected in its rate structure.

1.3 Background

1.3.1 TVA's Role in the Power Supply Region and Relationship to End-Use Customers

TVA is a self-financed, wholly owned federal corporation and public power entity. TVA has no shareholders and receives no appropriations (tax dollars). Under the TVA Act of 1933, as amended (1994), TVA has been tasked by Congress with advancing the social and economic welfare of the residents of the Tennessee Valley region. It currently serves a region that consists of parts of seven southeastern states (Figure 1-1). One of the most important ways that TVA fulfills its congressional mandate is by providing reliable, affordable electric power to the region's 158 power distributors and, through them, to the 8.3 million consumers of electricity. TVA's success is measured by the effectiveness in meeting the public needs rather than in creating financial wealth for private shareholders.

Over the past several years, the energy industry has undergone drastic changes, bringing many new challenges to TVA. As the industry continues to change and move haltingly into a more competitive marketplace, TVA wants to ensure that its rates are as low as feasible and remain competitive in the marketplace. TVA faces the challenges of how to retain distributors who may be considering other power suppliers, how to have more competitive pricing for manufacturing to keep large industries from leaving the Valley, and how to meet the demand of ever-growing load with reliable, affordable power.

As the power industry moves toward a restructured marketplace and markets open up that were traditionally closed, it becomes increasingly relevant to compare TVA prices to the market. TVA's residential rates are very low and are among the lowest in the nation and the Southeast. However, TVA's industrial rates, while competitive on a national basis, are much less competitive when compared to comparable rates of some of the utilities that are adjacent to the TVA service area. The Southeast happens to be one of the lowest-cost regions in the country. In light of recent and expected price increases on the Bonneville Power Administration system in the far northwest, Kentucky, for example, probably has or will soon have the lowest price for electricity of any state in the nation across all customer classes.

Especially, because TVA sells its power to local distributors through an end-use rate structure, TVA's wholesale rates have a direct impact on the retail rate competitiveness of each rate class. The largest cost included in the consumer's retail bill is the cost of delivered wholesale power (what TVA charges) that the distributor passes through to the consumers. A portion of the bill (an "adder") covers the distribution costs of the distributors. TVA's ability to serve its distributors at competitive wholesale power prices is critical to the success of TVA in accomplishing its mission of fostering a strong regional economy and a good quality of life.

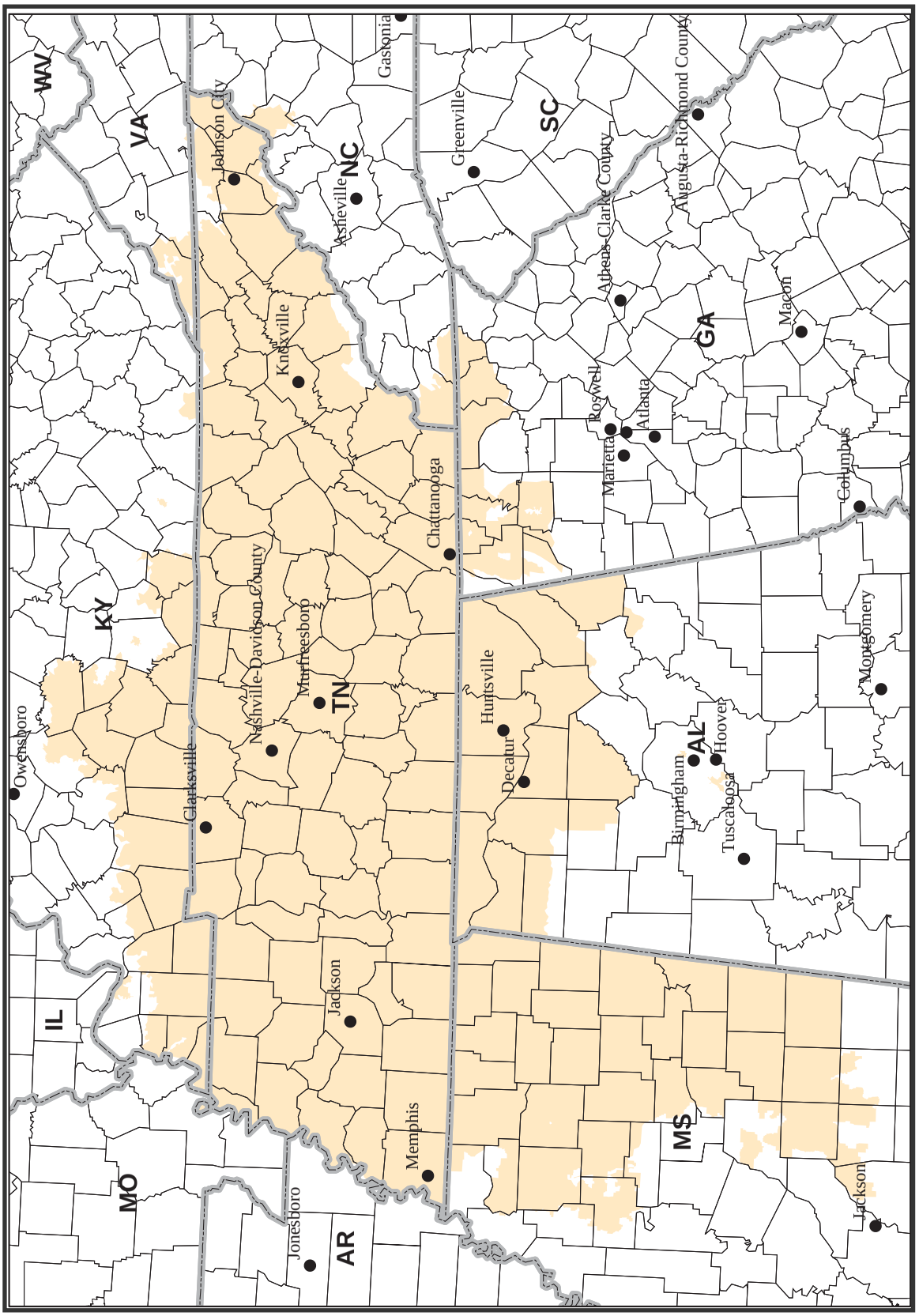

Figure 1-1. Map of the Seven-State TVA Power Service Area

1.3.2 TVA Rate Setting Authority, Policies and Procedures

The TVA Act delegates to the TVA Board of Directors sole responsibility for establishing the rates charged to power distributors and other customers for electric power supplied by TVA as well as broad authority over distributor resale rates and conditions of service. The TVA Board of Directors' rate responsibility is exercised within the framework of, and for the purpose of carrying out, the underlying policies and requirements of the TVA Act including those in Sections 10, 11, and 15d of the TVA Act.

Section 10 of the TVA Act authorizes the TVA Board of Directors "to include in any contract for the sale of power such terms and conditions, including resale rate schedules, and to provide for such rules and regulations as in its judgment may be necessary or desirable for carrying out the purposes of this Act." Under Section 11 of the TVA Act, power projects are to "be considered primarily as for the benefit of the people" of the region as a whole, particularly the domestic and rural consumers to whom the power can economically be made available. As part of the bond financing amendment to the TVA Act in 1959, Congress directed in Section 15d that TVA charge rates that produce gross revenues sufficient to provide funds for operation, maintenance, and administration; to provide payments to states and counties in lieu of taxes; to provide debt service on bonds; to provide payments to the United States Treasury in repayment of past government appropriations invested in the TVA power system plus payments as a return on such outstanding investment; and to provide additional margin for investment in power system assets and for other purposes connected with TVA's power business.

While the TVA Board of Directors exercises the responsibility to establish rates, which in its judgment will best implement the various policies and requirements of the TVA Act, procedures governing adjustments and changes in rates have been developed jointly and agreed to by the distributors and TVA. These procedures are set forth in a section entitled "Adjustment and Change of Wholesale Rate and Resale Rates" in the Schedule of Terms and Conditions which is a part of the power contract with each distributor. This section provides that the wholesale rate and resale rates in the power contract are subject to adjustment and change from time to time "in order to assure TVA's ability to continue to supply the power requirements of [Distributor] and TVA's other customers on a financially sound basis with due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as feasible, and to assure [Distributor]'s ability to continue to operate on a financially sound basis." It further provides that "wholesale power rates and charges shall be sufficient to produce revenue from TVA's wholesale power customers which, together with revenue from its other power customers, will assure TVA's ability each fiscal year to:

(a) meet the requirements of the TVA Act . . . and

(b) meet all tests and comply with the provisions of TVA's bond resolutions . . . in such a manner as to assure its ability to continue to finance and operate its power program at the lowest feasible cost."

Under TVA's contract with its distributors, there are different processes for making "rate adjustments" and making "rate changes." The focus of this Environmental Assessment (EA) is on the cost reallocation that would be implemented by the currently proposed alternatives for rate change. A "rate change" is a process by which TVA places into effect changes in the structure of the rates. Rate changes are generally designed to be

"revenue neutral" to TVA, i.e., the changed rates applied to the same billing data are intended to result in the same revenue being collected by TVA. Under the TVA-distributor contracts, either TVA or a distributor may request that the parties meet and endeavor to reach agreement upon changes to the contract's Schedule of Rate and Charges. If the parties cannot reach agreement on the changes within 180 days, TVA may thereafter, upon 30 days' notice, place into effect such changes as TVA determines will enable it to carry out the objectives of the TVA Act and meet the requirements and tests of TVA's bond resolutions.

TVA is also anticipating a concurrent rate adjustment, and this EA accordingly considers the potential effect of this as a reasonably foreseeable, cumulative action. A "rate adjustment" is the process by which TVA increases or decreases rates to match revenue needs. Following the rate review procedures set forth in the wholesale power contracts, the TVA Board of Directors can adjust the demand and energy charges in the wholesale and resale rate schedules as necessary to assure adequate revenues and to provide adequate compensating revenues to the distributors. A "demand charge" is the fee (charge) based on the peak amount of electricity used during a billing cycle. An "energy charge" is the fee for electric service that is based on electricity consumed by kilowatt-hour (kWh). Residential customers are typically only levied energy charges.

1.3.3 Current Rate Structure and Pricing of Electricity Among End-Use Customers

Historically, as for most utilities, TVA's rates charged to end-users have been based predominantly on the cost to serve those various customer groups–primarily two groups: (1) residential and (2) commercial and industrial (or "general"). When considering a rate structure change, TVA conducts a cost-of-service study. TVA's last formal cost-of-service study was implemented in 1986. While TVA expects cost of service to remain an important basis for energy pricing in the future (at least for publicly owned utilities like TVA), considering market competitiveness in the implementation of cost of service is of increasing importance.

As the electric utility industry has changed and will continue to change in the coming years, it is important that a utility's rates be competitive within the market. Rates based solely on cost of service may not produce a preferred—much less optimal—customer response. It is much easier now for larger users of energy to meet their needs from different and/or nontraditional energy suppliers to the disadvantage of less mobile consumers, typically residential and rural consumers, who literally may be left holding the "bag" for installed generating and transmission resource costs when mobile consumers leave established utility systems. Because the TVA Act gives particular attention to the needs of domestic (residential) and rural energy consumers, TVA believes it is appropriate to address this developing situation. The rate structure change being proposed by TVA is intended to do that. Among other things, TVA is proposing now to set its rates to not only continue to reflect the costs of serving various customer groups but also to better position its rates relative to regional market prices charged by other utilities for electricity.

The end-use wholesale rate now incorporated in the Schedule of Rates and Charges to the power contract was implemented through the rate change process in 1992, primarily to help distributors stabilize their net resale revenues. Under the end-use rate structure, most of TVA's revenue is derived by applying separate wholesale charges to the distributor's sales to each of its end-use customer groups. This allows wholesale power

cost to better match with resale revenues in every case (wholesale meter readings are still used to bill for losses, facilities' rental, and reactive charges).

As a result of end-use wholesale billing, resale rates among distributors generally reflect only differences in local distribution costs. Distributors have the flexibility to develop and propose for TVA's agreement individualized resale rates by adding to the wholesale rate for each end-use customer group an adder to cover local distribution costs. Distributors can also propose various approaches to designing the way in which distribution costs are recovered in the resale rates (i.e., under existing TVA policy, distributors have recently been offered contract amendments under which TVA regulation of their resale rates may be either eliminated or reduced). However, even under these contract amendments, the wholesale rate paid by the distributor is still based on the end-use classifications set forth in the Schedule of Rates and Charges to the power contract and the power and energy amounts measured at the distributor's retail meters.

The end-use rate structure adopted in 1992 continued the cost allocation derived from a fully allocated average embedded cost-of-service study for a rate change implemented in 1986. The current structure also continues the long-standing practice, consistent with policy contained in Section 11 of the TVA Act, of allocating the benefits of the low-cost hydroelectric system to the residential class. This hydro allocation is implemented by Residential rate credits and general power rate debits designed into the end-use wholesale and resale rates. The credit value of the hydro benefit was last updated in 1993. The last rate adjustment (an increase) occurred in 1997.

TVA's competitive position for rates charged to different customer end-user groups is uneven. TVA compares favorably with regard to the residential and commercial end-use customers. The average residential power price in the area served by TVA and the distributors of TVA power is 6.4 cents per kWh, or 25 percent below the national average, 19 percent below the average of large regional utilities (those utilities in states within or adjacent to the TVA service area that generated more than 50 million megawatt hours in 2001) and 11 percent below the average of neighboring utilities. However, rates for industrial customers are 12 percent higher than the average for neighboring utilities and 7 percent above that for large regional utilities. This industrial ranking includes interruptible products and applicable credits, which actually lower some of the industrial customers' prices. The average commercial rate in the TVA power service area is about the same as the average of neighboring utilities.

1.3.4 Relationship of Proposed Actions to Current Conditions

In today's economy, the Valley has been losing manufacturing load. This is a trend that threatens TVA's long-term ability to keep its rates as low as feasible for all consumers in the region because TVA's fixed costs are being distributed among fewer customers. Accordingly, TVA has proposed that wholesale charges applicable for sales to Residential and general power classifications be slightly higher than the current charges, and wholesale charges applicable to manufacturing be lower than the current charges.

Many of the industries in the Valley are price sensitive and either go out of business or move their business elsewhere if they cannot control costs enough to price their products competitively. This one segment of the electricity consumers in the Tennessee Valley region can make a difference in TVA's ability to provide electricity at the lowest feasible cost for consumers in the Valley. Manufacturers are supported by many suppliers; thus, a manufacturing facility not only provides jobs directly through

employment at the facility itself but indirectly in these supporting industries and services. This increases (or maintains) the base of customers available to help pay TVA's fixed costs to the benefit of every customer class.

1.4 The TVA Decision(s) to be Made

The proposed rate changes currently under discussion with distributors for possible implementation effective October 2003 include: (1) a reallocation of costs; (2) the change in value of the hydro benefit; (3) a new rate adjustment provision to help assure ongoing alignment of the credits and debits used to implement the hydro benefit; and (4) a change in the end-use wholesale charges for sales under the GSA and TGSA end-use classifications to eliminate the use of measured demand (higher of metered kilowatt [kW] or 85 percent of kilovolt-amperes) and to instead use metered demand as is the case for sales under the other general power end-use classifications. It is anticipated that in fall 2003, TVA may also adjust rates to cover TVA's increased revenue needs. As explained earlier, rate adjustments are subject to a different process than rate changes, and the rate adjustment being contemplated is not part of the proposed action addressed by this EA. Because TVA considers a rate adjustment to be reasonably foreseeable, the anticipated adjustment has been addressed in this EA.

1.5 Related National Environmental Policy Act (NEPA) Documents

This EA tiers from TVA's 1995 Energy Vision 2020 Environmental Impact Statement (EIS), in which TVA identified and selected a long-range strategy to enable TVA to meet the additional needs of its customers for electricity from 1996 to 2020. Other pertinent NEPA documents include:

> Tennessee Valley Authority. 1980. Alternative Electric Power Rate Structures Draft and Final Environmental Impact Statements. Tennessee Valley Authority, Knoxville, Tennessee.
>
> Tennessee Valley Authority. 1976. Policies Relating to Electric Power Rates Final Environmental Impact Statement, Volumes 1 and 2. Tennessee Valley Authority, Knoxville, Tennessee.

Both the 1976 and 1980 EISs explain in detail TVA's fundamental rate structure and customer classes and its relationship with the electricity sellers (the distributors) and consumers of the Tennessee Valley region. Both EISs considered rate structure changes of varying magnitude that bracket the rate structure change proposed here. Both EISs concluded that ascertaining resulting impacts on the physical environment (the air, water, land, and other primary natural resources) was largely speculative, basically because rate change (and rate adjustment) effects on the physical environment depend on numerous decisions to be made by persons and entities outside TVA's control. Both the timing and magnitude of consumer response to changes or adjustments in rate structures and rates of the limited kind under consideration by TVA are too uncertain to predict reasonably or accurately. Simply put, any effects from the changes proposed by TVA here would be swamped by many other equally or more important variables and the large size and complexity of the Valley's economy. Despite these uncertainties, both the 1976 and 1980 EISs concluded that in all likelihood any resulting physical environmental impacts would be insignificant. The analyses conducted for this EA confirm these earlier determinations.

1.6 Scoping Process

By letters to all distributors dated February 20, 2003, TVA initiated the rate change process. TVA has now met with distributors numerous times to discuss a number of proposed changes to the current end-use, wholesale rate structure and the corresponding resale rate structure. This notification was made in accordance with the rate change provisions of the existing TVA power contracts. The February 20 notification initiated a process for meeting with distributors to discuss the rate change proposals. These meetings, including presentations, discussions, and listening sessions, have aided in the scoping of issues and alternatives considered for this EA.